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Atty. Dkt. No. 076333-0108

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Joel S. Greenberger

Title: PROTECTION FROM IONIZING
IRRADIATION OR
CHEMOTHERAPEUTIC DRUG
DAMAGE BY *IN VIVO* GENE
THERAPY

Appl. No.: 08/907,041

Filing Date: 08/06/1997

Examiner: S. Chen

Art Unit: 1632

TERMINAL DISCLAIMER

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Your Petitioner, University of Pittsburgh, having its principal place of business at 911 William Pitt Union, Pittsburgh, Pennsylvania 15260, represents that it is the owner of the entire right, title, and interest in and to U.S. Patent Application No. 08/907,041, filed August 6, 1997, which is a continuation of U.S. Patent Application No. 08/484,836, filed June 7, 1995 (now abandoned), and a continuation of U.S. Application No. 08/136,079, filed October 15, 1993 (now U.S. Patent No. 5,599,712), by virtue of an Assignment filed and recorded on March 16, 1994, on Reel/Frame 6883/0407, in the United States Patent and Trademark Office, a copy of which is attached hereto as APPENDIX A, and by virtue of an Assignment filed and recorded on September 25, 1995, on Reel/Frame 7697/0730, in the United States Patent and Trademark Office, a copy of which is attached hereto as APPENDIX B. Further, your Petitioner represents that it is also the owner of U.S. Patent No. 6,211,848, which issued on U.S. Patent Application

05/18/2004 SMINASS1 00000041 08907041

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110.00 OP

No. 09/075,532, filed May 11, 1998, by virtue of an Assignment filed and recorded on July 20, 1998, on Reel/Frame 9435/0218, in the United States Patent and Trademark Office, a copy of which is attached hereto as APPENDIX C.

Your Petitioner, University of Pittsburgh, hereby disclaims the terminal part of the term of any patent granted on the above identified patent application which would extend beyond the full statutory term, as shortened by any terminal disclaimer, of U.S. Patent 6,211,848, and hereby agrees that any patent so granted on the above identified patent application shall be enforceable only for and during such period that the legal title to U.S. Patent 6,211,848 shall be the same as the legal title to any patent granted on the above identified patent application, this agreement to run with any patent granted on the above identified patent application and to be binding upon the grantee, its successors or assigns.

In making the above disclaimer, Petitioner does not disclaim any terminal part of any patent granted on the above identified patent application, prior to the full statutory term of U.S. Patent 6,211,848 as defined in 35 U.S.C. §§154-156 and 173, in the event that U.S. Patent 6,211,848 expires for failure to pay a maintenance fee, is held unenforceable or is found invalid in a final judgment by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR §1.321(a), has all claims canceled by a reexamination certificate or as a result of an interference proceeding, or is otherwise not deemed to provide the rights conveyed by 35 USC §154, prior to the full statutory term of U.S. Patent 6,211,848 as defined in 35 USC §§154-156 and 173, except for the separation of legal title stated above. Further, Petitioner does not disclaim any terminal part of a patent granted on the above identified patent application that would extend beyond the present termination of U.S. Patent 6,211,848, in the event that such present term is extended by virtue of compliance with the conditions for term extension of any present or future patent term extension provisions of the patent law, including but not limited to 35 U.S.C. §§155, 155A or 156, and without waiving Petitioner's right to extend the term of a patent granted on the above identified patent application to the extent provided by law.

The undersigned, being the Attorney of Record for the above identified patent application, and duly authorized to act on behalf of Petitioner, certifies that he has reviewed the Assignments attached as APPENDICES A and B, and to the best of his knowledge and belief, legal title to the above identified patent application and U.S. Patent 6,211,848 rests with Petitioner, University of Pittsburgh. The undersigned declares that all statements made herein of their own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above-identified application or any patent issuing therefrom.

Respectfully submitted,

By S.A. Bent

Date 14 May 2004

FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 672-5404
Facsimile: (202) 672-5399

Stephen A. Bent
Attorney for Applicant
Registration No. 29,768

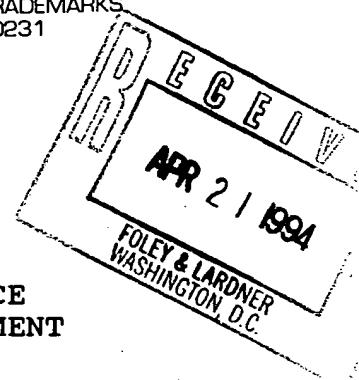
DATE: 03/24/94
TO:

STEPHEN A. BENT
FOLEY & LARDNER
3000 K STREET, N.W., STE. 500
WASHINGTON, DC 20007-5109



76333-0101
UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

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UNITED STATES PATENT AND TRADEMARK OFFICE
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PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT ASSIGNMENT PROCESSING SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT BRANCH, NORTH TOWER BUILDING, SUITE 10C35, WASHINGTON, D.C. 20231

ASSIGNOR: GREENBERGER, JOEL S. DOC DATE: 11/03/93

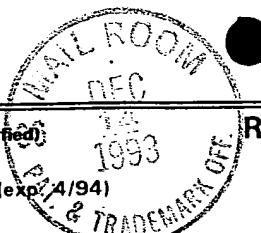
RECORDATION DATE: 03/16/94 NUMBER OF PAGES 003 REEL/FRAME 6883/0407

DIGEST : ASSIGNMENT OF ASSIGNORS INTEREST

ASSIGNEE:
UNIVERSITY OF PITTSBURGH
911 WILLIAM Pitt UNION PITTSBURGH, PA 15260

SERIAL NUMBER 8-136079 FILING DATE 10/15/93
PATENT NUMBER ISSUE DATE 00/00/00

P. Foster
EXAMINER/PARALEGAL
ASSIGNMENT BRANCH
ASSIGNMENT/CERTIFICATION SERVICES DIVISION



RECORDATION FORM COVER SHEET

PATENTS ONLYU.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

(1) Name of conveying party(ies):

Joel S. GREENBERGERAdditional name(s) of conveying party(ies) attached? No

(3) Nature of conveyance:

Assignment Merger
 Security Agreement Change of Name
 Other

Execution Date: November 3, 1993

(4) Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is:

A. Patent Application No.(s)

08/136,079

B. Patent No.(s)

Additional numbers attached? No

(5) Name and address of party to whom correspondence concerning document should be mailed:

Name: FOLEY & LARDNER

Internal Address:

Street Address: 3000 K Street, N.W., Suite 500City: Washington, State: D. C. ZIP: 20007-5109(6) Total number of applications and patents involved: 1(7) Total fee (37 C.F.R. § 3.41). \$40.00 Enclosed

— Authorized to be charged to deposit account

(8) Deposit account number: 19-0741

(Attach duplicate copy of this page if paying by deposit account)

100 JM 12/30/93 08136079

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(9) Statement and signature.

*To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.*Stephen A. Bent

Name of Person Signing

Signature

December 14, 1993

Date

93425612

Total number of pages including cover sheet, attachments, and document: 3

Mail documents to be recorded with required cover sheet information to:
 Commissioner of Patents & Trademarks, Box Assignments
 Washington, D.C. 20231

ASSIGNMENT

For good and valuable consideration received of the hereinafter Assignee, receipt of which is hereby acknowledged, the undersigned Joel S. GREENBERGER hereby sell and assign to UNIVERSITY OF PITTSBURGH having a place of business at 911 William Pitt Union, Pittsburgh, PA 15260, its successors and assigns, the entire right, title and interest, so far as concerns the United States and the Territories and Possessions thereof and all foreign countries in and to the invention in

**PROTECTION FROM IONIZING IRRADIATION OR
CHEMOTHERAPEUTIC DRUG DAMAGE BY IN VIVO GENE THERAPY**

as set forth in his United States Patent Application

 executed concurrently herewith

 executed on _____

XX Serial No. 08/136,079 filed October 15, 1993

said application for United States Letters Patent, including all divisional, renewal, substitute, continuation and Convention applications based in whole or in part upon said inventions or upon said applications, and any and all Letters Patent and reissues and extensions of Letters Patent granted for said inventions or upon said applications and every priority right that is or may be predicated upon or arise from said inventions, said applications, and said Letters Patent; said Assignee being hereby authorized to file patent applications in any or all countries on any or all said inventions in the name of the undersigned or in the name of said Assignee or otherwise as said Assignee may deem advisable, under the International Convention or otherwise; the Commissioner of Patents and Trademarks of the United States of America being hereby authorized to issue or transfer all said Letters Patent to said Assignee in accordance herewith; this assignment being under covenant, not only that full power to make the same is had by the undersigned, but also that such assigned right is not encumbered by any grant, license, or other right theretofore given, and that the undersigned will do all acts reasonably serving to assure that the said inventions, patent applications and Letters Patent shall be held and enjoyed by said Assignee as fully and entirely as the same could have been held and enjoyed by the undersigned if this assignment had not been made, and particularly to execute and deliver to said Assignee all lawful documents including petitions, specifications, oaths, assignments, invention disclaimers, and lawful affidavits in form and substance which may be requested by said Assignee, to furnish said Assignee with all facts relating to said inventions or the history thereof and any and all documents, photographs, models, samples or other physical exhibits which may be of said inventions, and to testify in any proceedings relating to said inventions, patent applications and Letters Patent.

REF ID: A64408

Assignment
Page 2

RECORDED
PATENT & TRADEMARK OFFICE

DEC 14 93

The undersigned hereby grant the firm of FOLEY & LARDNER the power to insert in this Assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office for recordation of this Assignment.

Date: 11/3/93

Inventor: Joey
Joel S. GREENBERGER

Post Office Address:

749 Chestnut Road
Sewickley, Pennsylvania 15143-1143

Date: 11-3-93

Witness: Patricia Sedlak

Date: _____

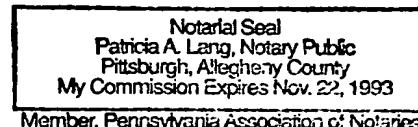
Witness: _____

:
: SS
:
:

Before me personally appeared the above named Joel S. GREENBERGER who acknowledged the execution of the foregoing instrument as his free act and deed.

Date: 11-3-93

Patricia A Lang
Notary Public



REEL 883 FRAME 409

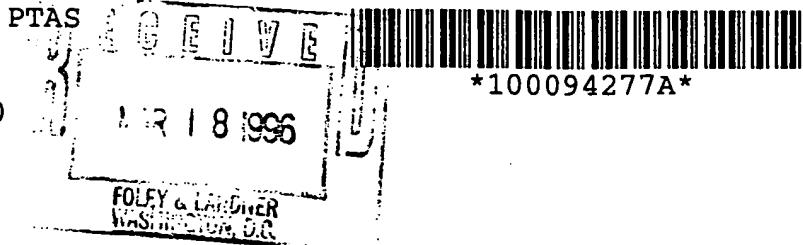
76333-0108



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

MARCH 13, 1996

STEPHEN A. BENT
FOLEY & LARDNER
3000 K STREET, N.W., SUITE 500
WASHINGTON, D.C. 20007



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NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, NORTH TOWER BUILDING, SUITE 10C35, WASHINGTON, D.C. 20231.

RECORDATION DATE: 09/25/1995

REEL/FRAME: 7697/0730
NUMBER OF PAGES: 2

BRIEF: ASSIGNMENT OF ASSIGNEE'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNEE:

GREENBERGER, JOEL S.
UNIVERSITY OF PITTSBURGH
OFFICE OF TECHNOLOGY TRANSFER
911 WILLIAM Pitt UNION
PITTSBURGH, PENNSYLVANIA 15260

DOC DATE: 08/02/1995

ASSIGNOR:

JOANNE STEWART, EXAMINER
ASSIGNMENT DIVISION
OFFICE OF PUBLIC RECORDS

SERIAL NUMBER: 08484836
PATENT NUMBER:

FILING DATE: 06/07/1995
ISSUE DATE:

APPENDIX B

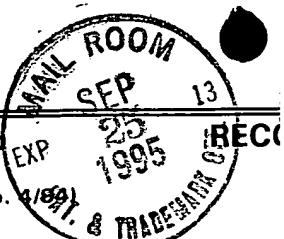
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A/D

11-27-1995

FORM PTO-1595 (modified)
(Rev. 6-93)

OMB No. 0651-0011 (exp. 4/89)

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

100094277

To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):

Joel S. GREENBERGER

11/03/95

MRD 9-25-95

Additional name(s) of conveying party(ies) attached? No

3. Nature of conveyance:

- Assignment
 Security Agreement
 Other

Merger
 Change of Name

Execution Date: August 2, 1995

2. Name and address of receiving party(ies):

Name: University of PittsburghInternal Address: Office of Technology TransferStreet Address: 911 William Pitt UnionCity: Pittsburgh, State: PA ZIP: 15260Additional name(s) & address(es) attached? No

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is:

A. Patent Application No.(s)

08/484,836

B. Patent No.(s)

Additional numbers attached? No

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Stephen A. BentInternal Address: FOLEY & LARDNERStreet Address: 3000 K Street, N.W., Suite 500City: Washington, State: D.C. ZIP: 200076. Total number of applications and patents involved: One7. Total fee (37 C.F.R. § 3.41). \$40.00 Enclosed Authorized to be charged to deposit account8. Deposit account number: 19-0741

(Attach duplicate copy of this page if paying by deposit account)

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9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Stephen A. Bent
Name of Person Signing

Signature

September 25, 1995
DateTotal number of pages including cover sheet, attachments, and document: 2

Mail documents to be recorded with required cover sheet information to:
 Commissioner of Patents & Trademarks, Box Assignments,
 Washington, D.C. 20231 1 581 40.00 CK

ASSIGNMENT - WORLDWIDE

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, each undersigned inventor has sold and assigned, and by these presents hereby sells and assigns, unto

UNIVERSITY OF PITTSBURG
911 William Pitt Union
Pittsburgh, PA 15260

its successors and assigns, the entire right, title and interest, so far as concerns the United States and the Territories and Possessions thereof and all foreign countries in and to the invention in

PROTECTION FROM IONIZING IRRADIATION OR CHEMOTHERAPEUTIC DRUG DAMAGE BY IN VIVO GENE THERAPY

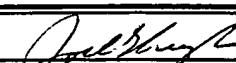
as set forth in his United States Patent Application

executed concurrently herewith
executed on
XX Serial No.8/484,836 filed June 7, 1995

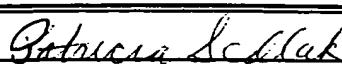
said application for United States Letters Patent, including all divisional, renewal, substitute, continuation and Convention applications based in whole or in part upon said inventions or upon said applications, and any and all Letters Patent and reissues and extensions of Letters Patent granted for said inventions or upon said applications and every priority right that is or may be predicated upon or arise from said inventions, said applications, and said Letters Patent; said Assignee being hereby authorized to file patent applications in any or all countries on any or all said inventions in the name of the undersigned or in the name of said Assignee or otherwise as said Assignee may deem advisable, under the International Convention or otherwise; the Commissioner of Patents and Trademarks of the United States of America being hereby authorized to issue or transfer all said Letters Patent to said Assignee in accordance herewith; this assignment being under covenant, not only that full power to make the same is had by the undersigned, but also that such assigned right is not encumbered by any grant, license, or other right theretofore given, and that the undersigned will do all acts reasonably serving to ensure that the said inventions, patent applications and Letters Patent shall be held and enjoyed by said Assignee as fully and entirely as the same could have been held and enjoyed by the undersigned if this assignment had not been made, and particularly to execute and deliver to said Assignee all lawful documents including petitions, specifications, oaths, assignments, invention disclaimers, and lawful affidavits in form and substance which may be requested by said Assignee, to furnish said Assignee with all facts relating to said inventions or the history thereof and any and all documents, photographs, models, samples or other physical exhibits which may be of said inventions, and to testify in any proceedings relating to said inventions, patent applications and Letters Patent.

The undersigned hereby grant the firm of FOLEY & LARDNER the power to insert in this Assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office for recordation of this Assignment.

NAMES AND SIGNATURES OF INVENTORS

Name: Joel S. GREENBERGER	Signature: 	Date: 8/2/95
Name:	Signature:	Date:
Name:	Signature:	Date:

NAMES AND SIGNATURES OF WITNESSES

Name: Patricia Sedlak	Signature: 	Date: 8-2-95
Name: Beth Dudley	Signature: 	Date: 8-2-95

Note: *Prima facie evidence of execution may optionally be obtained by execution of this document before a U.S. Consul or before a local officer authorized to administer oaths whose authority is proved by a certificate from a U.S. Consul.*

FORM PTO-1595 (modified)

(Rev. 6-93)

OMB No. 0651-0011 (exp. 4/94)

RECORDATION FORM COVER SHEET

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Offi**PATENTS ONLY**

To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):

Joel S. GREENBERGER

2. Name and address of receiving party(ies):

Name: UNIVERSITY OF PITTSBURGH

Internal Address:

Street Address: 911 William Pitt UnionCity: Pittsburgh, State: Pennsylvania ZIP: 15260

3. Nature of conveyance:

Assignment
 Security Agreement
 Other

Merger
 Change of Name

Execution Date: November 3, 1993Additional name(s) & address(es) attached? No

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is:

A. Patent Application No.(s)

08/136,079

B. Patent No.(s)

Additional numbers attached? No

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: FOLEY & LARDNER

Internal Address:

Street Address: 3000 K Street, N.W., Suite 500City: Washington, State: D. C. ZIP: 20007-51096. Total number of applications and patents involved: 17. Total fee (37 C.F.R. § 3.41). \$40.00 Enclosed Authorized to be charged to deposit account8. Deposit account number: 19-0741

(Attach duplicate copy of this page if paying by deposit account)

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9. Statement and signature.

*To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.*Stephen A. Bent

Name of Person Signing

Signature

December 14, 1993

Date

Total number of pages including cover sheet, attachments, and document: 3

Mail documents to be recorded with required cover sheet information to:
 Commissioner of Patents & Trademarks, Box Assignments
 Washington, D.C. 20231

ASSIGNMENT

For good and valuable consideration received of the hereinafter Assignee, receipt of which is hereby acknowledged, the undersigned Joel S. GREENBERGER hereby sell and assign to UNIVERSITY OF PITTSBURGH having a place of business at 911 William Pitt Union, Pittsburgh, PA 15260, its successors and assigns, the entire right, title and interest, so far as concerns the United States and the Territories and Possessions thereof and all foreign countries in and to the invention in

**PROTECTION FROM IONIZING IRRADIATION OR
CHEMOTHERAPEUTIC DRUG DAMAGE BY IN VIVO GENE THERAPY**

as set forth in his United States Patent Application

 executed concurrently herewith
 executed on _____
XX Serial No. 08/136,079 filed October 15, 1993

said application for United States Letters Patent, including all divisional, renewal, substitute, continuation and Convention applications based in whole or in part upon said inventions or upon said applications, and any and all Letters Patent and reissues and extensions of Letters Patent granted for said inventions or upon said applications and every priority right that is or may be predicated upon or arise from said inventions, said applications, and said Letters Patent; said Assignee being hereby authorized to file patent applications in any or all countries on any or all said inventions in the name of the undersigned or in the name of said Assignee or otherwise as said Assignee may deem advisable, under the International Convention or otherwise; the Commissioner of Patents and Trademarks of the United States of America being hereby authorized to issue or transfer all said Letters Patent to said Assignee in accordance herewith; this assignment being under covenant, not only that full power to make the same is had by the undersigned, but also that such assigned right is not encumbered by any grant, license, or other right theretofore given, and that the undersigned will do all acts reasonably serving to assure that the said inventions, patent applications and Letters Patent shall be held and enjoyed by said Assignee as fully and entirely as the same could have been held and enjoyed by the undersigned if this assignment had not been made, and particularly to execute and deliver to said Assignee all lawful documents including petitions, specifications, oaths, assignments, invention disclaimers, and lawful affidavits in form and substance which may be requested by said Assignee, to furnish said Assignee with all facts relating to said inventions or the history thereof and any and all documents, photographs, models, samples or other physical exhibits which may be of said inventions, and to testify in any proceedings relating to said inventions, patent applications and Letters Patent.

Assignment
Page 2

The undersigned hereby grant the firm of FOLEY & LARDNER the power to insert in this Assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office for recordation of this Assignment.

Date: 11-3-93

Inventor: Joel S. GREENBERGER

Post Office Address:

749 Chestnut Road
Sewickley, Pennsylvania 15143-1143

Date: 11-3-93

Witness: Patricia A. Lang

Date: _____

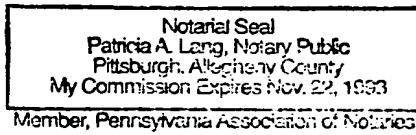
Witness: _____

:
: ss
:
:

Before me personally appeared the above named Joel S. GREENBERGER who acknowledged the execution of the foregoing instrument as his free act and deed.

Date: 11-3-93

Patricia A. Lang
Notary Public



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No. 76333/101/UNOF

In re patent application of

Joel S. GREENBERGER

Serial No. 08/136,079

Batch No.:

Filed: October 15, 1993

Group Art Unit:

Date Allowed:

Examiner:

For: PROTECTION FROM IONIZING IRRADIATION OR CHEMOTHERAPEUTIC DRUG DAMAGE BY *IN VIVO* GENE THERAPY

CERTIFICATE UNDER 37 C.F.R. 3.73(b)

University of Pittsburgh, at 911 William Pitt Union, Pittsburgh, PA 15260, certifies that it is the assignee of the entire right, title and interest in the patent application identified above by virtue of either:

- A. An assignment from the inventor of the patent application identified above. The assignment was recorded in the Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

OR

- B. A chain of title from the inventor(s), of the patent application identified above, to the current assignee as shown below:

1. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

3. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

Additional documents in the chain of title are listed on a supplemental sheet.

Copies of assignments or other documents in the chain of title are attached.

Serial No. 08/136,079

The undersigned has reviewed all the documents in the chain of title of the patent application identified above and, to the best of undersigned's knowledge and belief, title is in the assignee identified above.

The undersigned (whose title is supplied below) is empowered to sign this certificate on behalf of the assignee.

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: December 9 1993

Name: Frances J. Connell

Title: Director, Technology Transfer and Intellectual Property

Signature: Frances J. Connell

ASSIGNMENT

For good and valuable consideration received of the hereinafter Assignee, receipt of which is hereby acknowledged, the undersigned Joel S. GREENBERGER hereby sell and assign to UNIVERSITY OF PITTSBURGH having a place of business at 911 William Pitt Union, Pittsburgh, PA 15260, its successors and assigns, the entire right, title and interest, so far as concerns the United States and the Territories and Possessions thereof and all foreign countries in and to the invention in

**PROTECTION FROM IONIZING IRRADIATION OR
CHEMOTHERAPEUTIC DRUG DAMAGE BY IN VIVO GENE THERAPY**

as set forth in his United States Patent Application

 executed concurrently herewith
 executed on _____
XX Serial No. 08/136,079 filed October 15, 1993

said application for United States Letters Patent, including all divisional, renewal, substitute, continuation and Convention applications based in whole or in part upon said inventions or upon said applications, and any and all Letters Patent and reissues and extensions of Letters Patent granted for said inventions or upon said applications and every priority right that is or may be predicated upon or arise from said inventions, said applications, and said Letters Patent; said Assignee being hereby authorized to file patent applications in any or all countries on any or all said inventions in the name of the undersigned or in the name of said Assignee or otherwise as said Assignee may deem advisable, under the International Convention or otherwise; the Commissioner of Patents and Trademarks of the United States of America being hereby authorized to issue or transfer all said Letters Patent to said Assignee in accordance herewith; this assignment being under covenant, not only that full power to make the same is had by the undersigned, but also that such assigned right is not encumbered by any grant, license, or other right theretofore given, and that the undersigned will do all acts reasonably serving to assure that the said inventions, patent applications and Letters Patent shall be held and enjoyed by said Assignee as fully and entirely as the same could have been held and enjoyed by the undersigned if this assignment had not been made, and particularly to execute and deliver to said Assignee all lawful documents including petitions, specifications, oaths, assignments, invention disclaimers, and lawful affidavits in form and substance which may be requested by said Assignee, to furnish said Assignee with all facts relating to said inventions or the history thereof and any and all documents, photographs, models, samples or other physical exhibits which may be of said inventions, and to testify in any proceedings relating to said inventions, patent applications and Letters Patent.

Assignment
Page 2

The undersigned hereby grant the firm of FOLEY & LARDNER the power to insert in this Assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office for recordation of this Assignment.

Date: 11-3-93

Inventor: Joel S. GREENBERGER
Joel S. Greenberger

Post Office Address:

749 Chestnut Road
Sewickley, Pennsylvania 15143-1143

Date: 11-3-93

Witness: Patricia Leung

Date: _____

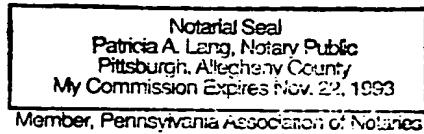
Witness: _____

:
: SS
:
:

Before me personally appeared the above named Joel S. GREENBERGER who acknowledged the execution of the foregoing instrument as his free act and deed.

Date: 11-3-93

Patricia A. Lang
Notary Public



Member, Pennsylvania Association of Notaries